

**REMARKS/ARGUMENTS**

In view of the following remarks, favorable reconsideration of the pending claims is respectfully requested.

Claims 6, 8, and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Revord, Klus, Brouard, and Randel. Claims 9-11 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Revord, Klus and Dailey. Claims 13 and 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Revord, Klus and Jagdmann. Revord and Klus are relied on in all the rejections, with Revord being the primary reference relied on by the Examiner.

In the Office Action dated April 30, 2008, claim 18 has been rejected as being unpatentable over Revord in view of Klus, Brouard and Randel, because:

- a) Revord assertedly teaches a method... in which the plaster crystallization underpressure is prevented;
- b) Klus allegedly teaches that a mixture is compressed in a mold during 30 to 45 seconds;
- c) Brouard allegedly teaches or suggests the claimed composition of the mixture; and
- d) Randel assertedly suggests the claimed pressure.

In the Advisory Action dated August 25, 2008, it was further asserted that:

- e) Revord shows that the claimed water proportions are known in the prior art;
- f) there is no evidence that the compression period in Klus is inapplicable to the process of Revord, as both are drawn to similar processes.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness, and respectfully requests reconsideration and withdrawal of these prior art rejections for at least the reasons set forth below.

1. ***The combination of the references does not disclose each and every element recited in independent Claim 18.***

**A. The combination of the references does not disclose or suggest a method in which plaster crystallization while under pressure in the mold is prevented.**

The Examiner relies on Revord for allegedly disclosing a method in which plaster crystallization while under pressure in the mold is prevented. This assertion is based on a mischaracterization or misunderstanding of the teachings of Revord. Revord explains (col. 3, lines 16-30) that the mixture of gypsum and water is placed in a mold and compressed and the water is dispersed or diffused uniformly throughout the gypsum during the compression. The mold is then opened, the product is unmolded and then sets.

It is known that the setting of a product made from a mixture of plaster and water has a long duration, and is completed when the product is dry. Revord indicates (for example, col. 3, lines 49-51 and 67-69) that the product is unmolded and permitted to dry for 24 hours.

Contrary to the assertions of the Examiner, when Revord indicates that the product is unmolded and then sets, it does not declare that the plaster hydration begins when the product is unmolded. Revord also does not teach that the plaster hydration was prevented before unmolding.

On the contrary, Revord declares (col. 10, lines 40-46): “The process is carried out in each instance by mixing the water and gypsum in the mold passage 12a and compressing the admixture. Water is dispersed throughout the gypsum into the fissures of the individual gypsum particles. A chemical bond is formed between the water and gypsum to result in a solid crystalline mass”. Thus, this excerpt clearly teaches that crystallinity results from the chemical bond being formed between the water and the gypsum. There is absolutely no teaching that plaster crystallization is prevented during the compression step of Revord.

Further, Revord does not teach in this passage that the chemical bond between the water and gypsum is formed only after that the product is unmolded. On the contrary, this passage indicates that the plaster crystallization occurs when the mixture is under pressure

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in the mold, because the water is dispersed (by the pressure) into the fissures of the gypsum particles and chemically bonds to the gypsum to form a crystalline mass.

In sharp contrast, the claimed invention as defined in claim 18 recites that the plaster hydration is prevented when the mixture is compressed in the mold. This feature is neither disclosed nor obtained by Revord which does not teach any means for preventing the plaster hydration in the mold. Accordingly, Revord does not disclose or suggest this element.

Additionally, Revord fails to disclose or suggest a method in which the mixture in the mold contains 35 to 45% of water and is compressed at a pressure of 150 bars. It is this recited combination of water content and pressure that prevents plaster hydration in the mold. On the contrary, Revord uses a mixture of plaster and water which contains 20% of water or less, which does not permit to prevent the plaster hydration when the mixture is compressed with a pressure of 150 bars or more.

Claim 18 further recites that the mixture is compressed during 30 to 45 seconds in the mold, this duration permitting that the applied pressure modifies the solubility of plaster in water and prevents the plaster crystallization.

This modification of the solubility is not instantaneous and requires a minimum quantity of water as mentioned in the disclosure of the present application (page 2, lines 25-28 and page 3, lines 1-3). Revord does not disclose any compression duration in the examples mentioned in his patent and it is clear that the compression duration is not a significant parameter for Revord: this is easily understandable because the plaster hydration begins in Revord as soon as the plaster is exposed to water and continues when the mixture is compressed in the mold. In these conditions, the compression serves only to diffuse the water throughout the plaster (see col.3, lines 21-23).

As soon as the water has diffused throughout the plaster, the compression is stopped and the product is unmolded (see col. 3, lines 23-27). It is clear from these excerpts of Revord that the water diffusion throughout the plaster is the only result that Revord will obtain from the compression of the mixture in the mold. That is, there is absolutely no teaching that sufficient pressure is applied to prevent plaster crystallization,

let alone, a combination of water and pressure. Thus, the combination of the references fails to disclose or suggest each and every element recited in independent Claim 18.

**B. The combination of the references does not disclose or suggest the recited compression period.**

The Examiner relies on Klus for allegedly teaching the claimed compression period for a building element made of a mixture of plaster, water and filler. However, a reading of Klus as a whole reveals that the Examiner's reliance on Klus is misplaced.

In col. 7, lines 55-67, Klus discloses a press molding in which the pressure is from 200 to 350 psi for a time from 0.1 to 2 minutes, more preferably from 0.4 to 0.7 minutes, the pressure being applied to a mixture. Klus further states that the mixture "contains substantially no gypsum, thereby eliminating the dimensional increase of gypsum when exposed to water" (col. 8, lines 54-56) (emphasis added). As such, Klus does not teach a compression period from 0.4 to 0.7 minute for all kinds of mixtures and for all kinds of processes. Rather, Klus only teaches this compression period for a mixture that contains substantially no gypsum and that does not expand when exposed to water.

Further, Klus does not indicate or suggest that this compression period is applicable to a mixture which contains a relatively large percentage of plaster which expands when exposed to water. In fact, a proper reading of the portion relied on by the Examiner reveals that the compression period is not applicable to plaster because plaster expands when exposed to water.

Moreover, Klus does not disclose or suggest that the compression period from 0.4 to 0.7 minute, which is given for a pressure of 200 to 350 psi, remains the same when the pressure is much higher, for example of 2000 psi (140 bar).

When one skilled in the art tries to determine the time period during which a pressure of 150 bars should be applied to a mixture containing plaster, water and filler, it is not useful for him to know that a pressure of 14 to 24 bars can be applied during 0.4 to 0.7 minute to a mixture which contains substantially no plaster.

Klus is not therefore a pertinent prior document because it does not teach to apply a pressure of 150 bars during 30 to 45 seconds to a mixture of plaster, water and filler. Thus,

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the combination of Revord with Klus also fails to disclose or suggest the recited duration of compression. Accordingly, Claim 18 is patentable over the cited references for this additional reason.

**C. Brouard does not compensate for the deficiencies of the teachings of either Revord or Klus.**

Brouard is apparently the most pertinent reference because it discloses the same type of building material, made from a mixture of plaster, water and filler having the claimed water content.

However, Brouard applies to this mixture a pressure of 50-100 bar and maintains the mixture under pressure in a mold for a length of time from 1.5 to 5 minutes, corresponding to 70-90% of the full hydration of the plaster (col.6, lines 3-5 and 43-46).

This teaching does not suggest to one skilled in the art that the pressure applied to the mixture should be of 150 bar, that the compression time should be of 30 to 45 seconds instead of 1.5 to 5 minutes and that the hydration of the plaster under pressure in the mold should be prevented, instead of being carried out under pressure in the mold.

**D. Randel also fails to compensate for the deficiencies of the teachings of either Revord or Klus**

Randel teaches that:

- a plaster mixed with 35% of water and submitted to a pressure of 5 psi, has a water absorption of 5.5% (when set and dried); and
- the same plaster submitted to a pressure of 4000 psi has a water absorption of 3.2%, when set and dried.

Randel therefore does not disclose or suggest that a plaster mixed with 35% of water and submitted to a pressure of 2150 psi, can be prevented from hydrating and expanding. Accordingly, the combination Randel with the other references fails to disclose or suggest the claimed invention.

**E. No motivation to modify Revord as contemplated by the Examiner.**

Specifically, Revord does not teach the claimed water proportions in a compression process. In col.1, lines 64-69, Revord discloses a slurry process which utilizes 40 to 70%

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of water by weight. However, a slurry process does not comprise any compression of the mixture of plaster and water. The other portion of Revord concerns a process which uses a small quantity of water (16 to 20%) and a compression of the mixture in a mold. Thus, Revord is not directed to a process that uses water and pressure in a molding processes to prevent plaster crystallization.

The content of Revord can therefore be summarized as follows:

- a mixture comprising 40 to 70% of water without any compression (prior art),
- a mixture comprising 16 to 20% of water with a compression in a mold (Revord's invention).

In view of this understanding of Revord, it is clear that Revord is not a pertinent prior document because it does not disclose or suggest a mixture comprising 35 to 45% of water with a compression in a mold. Accordingly, one of ordinary skill in the art would not be motivated to modify Revord as contemplated by the Examiner to arrive at the claimed invention.

**F. There is no motivation to combine Revord with the teachings of Klus**

One of ordinary skill in the art would not be motivated to modify Revord with the teachings of Klus. Revord teaches a process for compressing a mixture of plaster and water in a mold. In contrast, Klus teaches a press molding process for a product "which contains substantially no gypsum". As such, these are two distinct and significantly different processes and one of ordinary skill in the art would not be motivated to combine them as contemplated by the Examiner.

In fact, both processes are significantly different from each other.

- Revord discloses a mixture of plaster and water, whereas Klus discloses a mixture of perlite, fire clay or vermiculite, and a fireproof binder which is not plaster, but an alkali metal silicate;
- Revord uses pressures of 7,500 psi, 5000 psi, 3000 psi or 1000 psi whereas Klus uses pressures of 200 to 350 psi,

- After unmolding, the product is permitted to dry in a humidity chest for 24 hours in Revord, whereas the product is cured at 400-700°F for two hours in Klus (col. 8, lines 4-19).

Under these significantly different conditions, there is no reason that the compression period in Klus can be automatically or obviously applicable to the process of Revord.

In view of the foregoing, it is evident that:

- Revord does neither disclose nor suggest any means which could prevent the plaster crystallization under pressure in a mold,

- The compression period disclosed by Klus for a particular product containing substantially no gypsum is not applicable to other products containing a relatively large quantity of gypsum,

- Brouard discloses a process based on the crystallization of plaster under pressure in a mold and does neither disclose nor suggest any means which could prevent this crystallization,

- Revord does neither disclose nor suggest that the claimed water proportion is known in the prior art for a press molding process,

- Randel discloses the claimed water content and a pressure larger than the claimed pressure, but does not disclose the duration of the compression which is necessary to prevent the crystallization of the plaster under pressure, and does neither disclose nor suggest that the plaster crystallization could be prevented if the pressure is applied during 30-45 seconds,

- No other document except Klus discloses such a duration and Klus, which discloses the claimed duration for a product that contains no gypsum, does neither indicate nor suggest that this duration could prevent the plaster crystallization in a product when:

- . the product contains plaster instead of an alkali metal silicate,
- . the product contains 35-45% of water,
- . the pressure is of 2150 psi instead of 200-350 psi.

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Thus, the combination of the references fails to disclose or suggest the claimed invention.

In view of the foregoing discussion, it is readily evident that the combination of references fails to disclose or suggest each and every element recited in independent Claim 18, and it is also clear that one of ordinary skill in the art would not be motivated to combine the references as suggested by the Examiner. Accordingly, it is respectfully submitted that the rejections under 35 U.S.C. § 103 have been overcome and that the pending claims are in condition for immediate allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



Timothy J. Balts  
Registration No. 51,429

**Customer No. 00826**

**ALSTON & BIRD LLP**

Bank of America Plaza

101 South Tryon Street, Suite 4000

Charlotte, NC 28280-4000

Tel Charlotte Office (704) 444-1000

Fax Charlotte Office (704) 444-1111

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